

Maternity Nurse's Awareness and Preparedness Regarding COVID19 pandemic



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ABSTRACT

Background: Nurses' awareness and preparedness for COVID-19 pandemic have a significant effect on the health of women & health care professionals, as well as lowering morbidity and mortality rates. **Aim:** To investigate maternity nurses' Awareness and preparedness regarding COVID19 pandemic. **Method:** A retrospective cross-sectional study was conducted. This study was carried out at Obstetric and Gynecological inpatient wards (9,10,15,18), Labor & Delivery Unit and outpatient clinics of New Obstetric & Gynecological Hospital in Mansoura University Hospital, Mansoura city, Dakahlia Governorate, Egypt. A convenient sample was chosen. The investigated sample included all maternity nurses (77) on the previously mentioned setting. **Tools:** Two tools were used: a structured interview questionnaire, assessment of maternity nurse's preparedness regarding COVID19 pandemic questionnaire. **Results:** 97.4% of the studied nurses know definition of COVID19, most of them know symptoms, mode of transmission, high risk cases and measures that must be taken to reduce the spread from suspected COVID19 pandemic, 98.7% of them know that there is vaccine for COVID19 pandemic and 50.6% of them know Sinovac. 94.8% of them were prepared to use personal protective equipments, 96.1% of them were prepared to use safety precautions & 92.2% of them were prepared to use isolation procedures. **Conclusion:** Nearly three-quarters of the studied nurses had good awareness about COVID-19 pandemic, also three-quarters with them had good preparedness for it. **Recommendation:** Stressing the need of participating in training programs such as workshops and seminars to update information and prepare for rapid changes and virus growth.

Keywords: Awareness, COVID-19 Pandemic, Naternity Nurses, Preparedness

Introduction

COVID-19 is a severe acute respiratory problem, which is the cause of the extremely contagious respiratory disorder. It is an enveloped, positive-sense, single-stranded ribonucleic acid (RNA) virus that is part of the coronaviridae family and beta-coronavirus genus (Tzenios, Chahine, & Tazanios, 2023). When a number of cases of pneumonia were reported from Wuhan, China in December 2019, the whole world was alerted to the outbreak, which spread rapidly later (Elbeltagy, El-sayed, & El-Feshawy, 2022). In March 2020, World Health Organization (WHO) reported the coronavirus disease as a global epidemic (World Health Organization, 2020). According to a recent estimate as of April 4, 2022, the virus has infected over 492 million people, of whom over 6 million have died (Alinaghi, Karimi, Mojdeganlou, Alilou, Mirghaderi, & Noori, 2022).

A variety of signs and symptoms are associated with the pandemic; these range from mild ones like a high fever, runny nose, congestion, breathing difficulties fatigue, myalgia and taste loss due to serious ones like pneumonia, severe lung

sickness, multi-organ failure and death (Mascarenhas, Caroci-Becker, Venâncio, Baraldi, Durkin, & Riesco, 2020). COVID-19 has a two to fourteen-day incubation period and is characterized by quick transmission via respiratory droplets produced during speaking, sneezing, coughing, and fecal-oral contact with an infected person (Rothan & Byrareddy, 2020).

The pandemic is reported as a hazardous illness that has a wide range of effects. Furthermore, this virus presents an immediate risk to communities across the world. It has multiple effects as job loss and its impact on families, changes in education as attendance and also engagement which changed to online and distant learning as well as many other changes in human life (Marital, & Barzani, 2020).

Health care providers are especially susceptible to suffering from COVID-19 virus while doing their duties, making them the first line to the pandemic. Recent research showed that health care professionals are more likely than people in general to be infected with coronavirus and thus, to get COVID19. Nevertheless, despite an

increased impact, insufficient resources, the risk of getting an infection for themselves, the risk of the virus spreading to family members and loss of patients and coworkers, they continue to give direct care for patients (Mehta, Machado, Kwizera, Papazian, Moss, Azoulay, et al., 2021). Thus, COVID-19 pandemic had a significant impact on health care providers. Fortunately, the most effective tool for protecting health care professionals against the COVID-19 pandemic remains prevention (Ashinyo, Dubik, Duti, Amegah, Ashinyo, Asare, et al., 2021).

Many different health care professionals are engaged with the management of cases involving this highly contagious virus. However, the misinformation and insufficient knowledge about the virus, in addition with the health care providers' inadequate infection control procedures, cause delayed in diagnosis and raise the risk of infection (Saqlain, Munir, Rehman, Gulzar, Naz, Ahmed, et al., 2020). Nurses are likely a crucial link of transmission of the virus due to their close contact with COVID-19 sufferers. Thus, expanding their awareness and increasing their protective and preventative actions against COVID-19 could help in preventing the chain of transmission (Nemati, Ebrahimi, & Nemati, 2020).

Early nurse actions are essential for preventing COVID-19 pandemic's effects. To improve preparedness and management among health care providers especially nurses, there is a need for enough training in specific skills to provide high-quality treatment to COVID-19 patients. For this reason, frontline nurses must have sufficient knowledge regarding COVID-19, have the ability to respond effectively and be critically prepared (WHO, 2020a; WHO, 2020b).

Enhancing knowledge and therefore providing appropriate training among health care professionals to deal patients with suspected or confirmed COVID-19 can greatly reduce the risk of the virus developing and spreading to additional patients and staff members. As a result, hospitals that serve patients suffering from COVID-19 should train professionals adequately to increase the level of awareness regarding the virus (Chan, Yuan, Kok, To, Chu, Yang, et al., 2020). Furthermore, preventive precautions such as surgical masks and N95 masks, protective glasses and protective clothing will be essential in ensuring the safety of health care providers during COVID-19 outbreaks and in the future (Chan et al., 2020).

Significance of the study

Worldwide, as millions of human beings stay at home to avoid the spreading of COVID-19 pandemic and at the same time health care professionals (HCPs) risk their lives by coming to the hospitals and medical centers, putting themselves at a high danger of COVID-19. Figures from media reports and health resources showed a significant proportion of infections and deaths among health care professionals. Health care providers are critical resources that need to be protected and training is an activity that can help HCWs protect themselves from this infection (Thakre, Thakre, Jadhao, Dass, Dhoble, & Tiwari, 2020).

Health care professionals, particularly nurses worldwide, as well as in Egypt, susceptible to viral aerosol droplets in several work settings, in addition, they are more likely to get the virus and suffer severe effects from the pandemic. Furthermore, exposure to greater viral loads, mainly when caring for very sick patients, may have a negative impact on the severity of illness in medical professionals. Therefore, it was estimated that frontline healthcare workers (HCWs) had a 3.4-fold higher probability of reporting a positive COVID-19 test than the general population (Nguyen, Drew, Joshi, Guo, Ma, Mehta, et al., 2020).

Nurses are considered as the front-line combatants of COVID-19, maintaining regular contact starting at the time of admission for patients until their discharge. So, nurses face numerous work-related hazards and psychological stress as well (Oh, Hong, Ryu, Bae, Kam, & Kim, 2017). Additionally, nurses' experiences responding to the COVID-19 outbreak indicate that a number of issues, including confusion, a lack of awareness, feeling of anger and guilt, lack of preparedness, fear of dying, isolation as well as physical illness, are typical during such disasters (Galehdar, Toulabi, Kamran, Heydari, 2020). Among the primary causes of the infection's spread in healthcare settings is a lack of knowledge and instruction on how to follow WHO guidelines. In Egypt, a lot of research has been done to serve the community regarding COVID-19 pandemic, this study was conducted at Mansoura to assess maternity nurses' awareness and preparedness regarding COVID-19 pandemic.

Aim of the study

The aim of this study was to assess maternity nurse's awareness and preparedness regarding COVID-19 pandemic.

Research questions

1. Do maternity nurses have awareness of COVID19 pandemic?
2. Do maternity nurses are prepared to deal with COVID19 pandemic?

Study Design

Retrospective descriptive cross-sectional study was conducted.

Study setting

This study was carried out at Obstetric and Gynecological inpatient wards (9, 10,15,18), Labor & Delivery Unit and outpatient clinics of New Obstetrics & Gynecology Hospital at Mansoura University Hospital, Mansoura city, Governorate of Dakahlia, Egypt. The Obstetric and Gynecological inpatient wards consist of three units, each with 26-28 beds. Labor and delivery unit contains an examining room, a large room with six beds, a room for pre-eclampsia patients, a room for ultrasound and postpartum room. MUH provide services for pregnant, parturient and postpartum women three days per week (Sunday- Tuesday & Thursday). The New Obstetrics & Gynecology Hospital consists of an examining room, laboratory, vesicular mole, ultrasound, and reception area. It provides for diagnostic & therapeutic services to pregnant women (from Saturday to Wednesday, starting at 9.00 A.m. to 12 P.m.).

Sample type: A convenient sample was chosen.

Study sample:

The study sample included all maternity nurses (77) at Obstetric and Gynecological inpatient wards (9,10,15,18), Labor & Delivery Unit and outpatient clinics of New Obstetrics & Gynecology Hospital, during the period from the beginning of September 2022 till the end of February 2023 and with exception of administrative work nurses.

Tools of data collection

Two tools were used to collect data.

Tool (I): A structured Interview questionnaire:

This tool was developed by the investigator after reviewing the related literatures. It consisted of two components:

Part (1): Demographic and occupational data of maternity nurses, as age, qualification, place of work, years of experience, and residence.

Part (2): Knowledge of nurses regarding COVID19 pandemic

It was adopted from **Dalky et al., (2021)** to evaluate the maternity nurse's knowledge of COVID19 pandemic. It includes 10 questions such

as: the definition of COVID19; signs and symptoms of COVID19 infection; mode of transmission of COVID19; tests that should be performed for the diagnosis of COVID19 infection; high risk cases for having COVID19; personal protective equipments; protective measures; measures should be performed to stop the spread of suspected COVID19 patients; vaccine available for COVID19 and types of vaccine.

Scoring system

Knowledge score was (1) for correct answer and (0) for incorrect answer. The total score was 10 and was categorized into "good, fair and poor knowledge" as follows: poor<50%, fair from 50% to 75% and good >75 (**Dalky et al., 2021**).

Tool (II): Assessment of Maternity Nurses and Hospital Preparedness Regarding COVID19 Pandemic Questionnaire:

This tool was adopted from **Elhadi et al., (2020)** and encompassed 19 items to assess the overall maternity nurse's and hospital preparedness regarding of training program for outbreak management, use personal protective equipments, using safety precautions that should be taken for aerosol transmission in patients with COVID19 and reporting a potential COVID19 case.....etc.

Scoring system

To assess preparedness, the maternity nurses responded to each question with yes (1) or no (zero). Scores of preparedness ranges from (0 to 19) and categorized: as poor <50%, fair from 50% to 75%, and good >75%.

Validity of the tools

The content validity of the tools was reviewed by a group of three specialists in the field of woman's health and midwifery nursing before being used to make sure that the questions were asked consistently, presented with the expected meaning for which they were prepared and modifications were done as simplifying the meaning, rearranging the sequence and integrating some questions.

Reliability of tools

The Cronbach's alpha score of the nurse's knowledge regarding COVID19 pandemic was 0.894, and of the nurse's preparedness regarding COVID19 pandemic was 0.88 so it was found that the questionnaire had a high degree of reliability.

Pilot Study

The pilot study was carried out before data collection on 10% (8 maternity nurses) to evaluate the applicability and clarity of these tools. Based on the findings of the pilot study, the

required adjustments as simplifying the meaning and rearranging of some statements were done.

Ethical Considerations:

This study was approved for implementation by the research ethics committee at Faculty of Nursing, Mansoura University. Official permission was acquired from the director of Mansoura University Hospital. Prior to the study, oral consent was acquired from all maternity nurses after an explanation of the study's nature and purpose. Withdraw from the study was voluntary and each maternity nurse was reassured about the privacy of the collected data.

Data collection process

- The Committee of research Ethics of the Mansoura University, Faculty of Nursing provided its ethical approval for the study's implementation.
- Official permission to carry out the study was obtained by Mansoura University's Hospital director.
- The researcher followed specified personal protective measures through data collecting to ensure privacy and safety.
- The researcher attended the previously mentioned setting three days per week (Sunday, Tuesday and Wednesday) from 10 Am until 2 Pm. On Sunday, at Obstetric and Gynecological inpatient wards (9,10,15,18), on Tuesday, at Labor & Delivery Unit and on Wednesday, at outpatient clinics of New Obstetrics & Gynecology Hospital.
- At the start of the interview the researcher greeted each maternity nurse explained them of the study's goal and obtained their oral consent through the appropriate channel of communication.
- The researcher collected demographic data from maternity nurses such as age, qualification, workplace, years of experience and residence and assessed their level of knowledge and preparedness of COVID19.
- This process was repeated until the researcher completed the predetermined sample.
- Statistical program for social science (SPSS) version 21 was utilized to store, categorize, code, computerize, tabulate and analyze the obtained data.

Statistical Analysis

All statistical analyses were performed using SPSS for Windows version 20.0 (SPSS, Chicago, IL). The continuously collected data has a normal distribution and were explained in mean \pm standard deviation (SD). Categorical data were expressed in number and percentage. Chi-square test (or Fisher's exact test when applicable) was used to compare variables to categorical data. The validity (internal consistency) test for the questionnaires used in the study was calculated. Statistical significance was at $p < 0.05$.

Results

Table 1. shows that around half of the studied nurses aged more than 30 years with Mean \pm SD 29.3 \pm 4.5 and had technical institute (50.6% & 58.5%, respectively). 48.1% of them work in inpatient wards and 54.5% of them had more than 10 years of experience. More than three quarters of them (77.9%) are from rural areas.

Table 2.A. Shows that 97.4% of the studied nurses know what is COVID19 and 16.9% of them didn't know that red eye and rash are symptoms of COVID19 pandemic infection. The majority of them didn't know that Red-time PCR with serum sample & CT are tests that should be performed for diagnosis of COVID19 (84.4%, 87.0% respectively). Only 2.6% of them didn't know that hand shaking is a mode of transmission of COVID19.

Table 2.B. Describes that 10.4% of the studied nurses didn't know that history of travel to areas where the virus is being transmitted and vulnerable group are high risk cases for having COVID19. Around one third of them didn't know that wearing overhead and shoes & sterilization and disinfection are personal protective equipments (32.5% & 36.4%, respectively). 100% of them know that gloves, mask and hard hats are personal protective equipments. Around three quarters of them know that wearing mask and sterilization of tools are protective measures (83.1% & 74.0%, respectively). 100% of them know that wash hands frequently with soap and water or an alcohol-based hand rub at least 20sec is a measure that should be taken to prevent transmission from suspected patients.

Table 2.C. Illustrates that 98.7% of the studied nurses know that there is vaccine available for COVID19. 77.9% of them know that there are contraindications for COVID19 vaccine. Around half of them know that Vaxzervria and Sinovac are types of COVID19 vaccine (48.1% & 50.6%, respectively).

Figure 1. Shows that less than three quarters of the studied nurses (71.4%) had good knowledge regarding COVID19, 16.9% of them had fair knowledge, while 11,7% of them had poor knowledge.

Table 3.A. Illustrates that 44. 2% of the studied nurses hadn't participated in training program for outbreak management. Most of them (94.8%, 96.1%, 92.2% & 96.1, respectively) were prepared to properly use PPE, prepared for using safety precautions, prepared for applying isolation procedure and prepared for how to report a potential COVID19 cases.

Table 3.B. Shows that 87% of the studied nurses reported that the hospital policy prevents pregnant nurses and who had chronic disease to deal with COVID19 cases and more than half

(51.9%) of them reported that there is proper proportion between patients and nurse-staff members. Regarding preparedness of place, the majority of them (83.1%, 87%, respectively) reported that isolation places are available enough and well ventilated & comfortable. Regarding preparedness of supplies, most of the studied nurses reported that equipments are sterilized in proper method & waste products are disposed properly (92.2% & 93.5%, respectively). 83.1% of them reported that equipments are enough for caring.

Figure 2. Shows that three-quarters of the studied nurses (75.3%) had good preparedness regarding COVID19, 15.9% of them had fair preparedness, while 9.1% of them had poor preparedness

Table 1: Demographic & Occupational Data of the Studied Nurses.

Age (Years)	n	%
Less than 25	16	20.8
25 – 30	22	28.6
More than 30	39	50.6
Mean ±SD	29.3 ±4.5	
Qualification		
Diploma	32	41.6
Technical institute	45	58.5
Place of work		
Inpatient wards	37	48.1
Outpatient clinics	20	26.0
Labor and delivery unit	20	26.0
Years of experience		
Less than 5	19	24.7
5 – 10	16	20.8
More than 10	42	54.5
Residence		
Rural	60	77.9
Urban	17	22.1

Table 2.A. Knowledge of the Studied Nurses Regarding COVID19 Pandemic.

Items	Yes		No	
	no. (77)	%	no. (77)	%
Definition of COVID19	75	97.4	2	2.6
Symptoms of the COVID19 infection				
Fever	75	97.4	2	2.6
Cough	74	96.1	3	3.9
Runny nose	69	89.6	8	10.4
Sore throat	74	96.1	3	3.9
Shortness of Breath	77	100.0	0	0.0
Joint/ muscle pain	75	97.4	2	2.6
Red eyes	64	83.1	13	16.9
Rash	64	83.1	13	16.9

Diarrhea	73	94.8	4	5.2
may present with no symptoms.	69	89.6	8	10.4
Mode of transmission of COVID19				
via sneezing and coughing	76	98.7	1	1.3
Hand shaking	75	97.4	2	2.6
Touching surfaces as doorknobs and table	77	100.0	0	0.0
Tests that should be performed for the diagnosis of COVID19 infection				
Real-time polymerase chain reaction (RT-PCR) using respiratory material (nasopharyngeal or oropharyngeal swab/sputum/endotracheal aspirate or bronchoalveolar lavage)	58	75.3	19	24.7
Real-time PCR with serum sample	12	15.6	65	84.4
Chest X-Ray	40	51.9	37	48.1
CT	10	13.0	67	87.0

Table 2.B. Knowledge of the Studied Nurses Regarding COVID19 Pandemic.

Items	Yes		No	
	no. (77)	%	no. (77)	%
High risk cases for having COVID19				
History of a respiratory disease	75	97.4	2	2.6
History of travel to areas where the virus is being transmitted	69	89.6	8	10.4
History of contact history with potentially infected patients	74	96.1	3	3.9
Vulnerable group	69	89.6	8	10.4
Health team providers	70	90.9	7	9.1
People with chronic diseases	73	94.8	4	5.2
Personal protective equipments				
Gloves	77	100.0	0	0.0
Safety glasses	76	98.7	1	1.3
Mask	77	100.0	0	0.0
Hard hats	77	100.0	0	0.0
Vests and full body suits	76	98.7	1	1.3
Gown	62	80.5	15	19.5
Use gloves	63	81.8	14	18.2
Wearing overhead and shoes	52	67.5	25	32.5
Washing hands with alcohol and soap	60	77.9	17	22.1
Sterilization and disinfection	49	63.6	28	36.4
Protective measures				
Wearing mask	64	83.1	13	16.9
Using face shield and head shield	60	77.9	17	22.1
Using personal protection, such as gowns, glasses, overheads, and overshoes	64	83.1	13	16.9

Sterilization of tools	57	74.0	20	26.0
Measures should be taken to prevent transmission from suspected COVID19 patients				
wash hands frequently with soap and water or an alcohol-based hand rub at least 20sec	77	100.0	0	0.0
Eat boiled and cooked food	76	98.7	1	1.3
Put on a face mask for patients you know or suspect	76	98.7	1	1.3
Place known or suspected patients in separate, well-ventilated rooms	76	98.7	1	1.3
All health care professionals should use the appropriate personal protective equipment (PPE).	76	98.7	1	1.3
Avoid moving and transporting patients outside of their area only when absolutely essential.	76	98.7	1	1.3
Regularly clean and disinfect surfaces in contact with known or suspected patients.	76	98.7	1	1.3

Table 2.C. Knowledge of the Studied Nurses Regarding COVID19 Pandemic.

Items	Yes		No	
	no. (77)	%	no. (77)	%
There is a vaccine available for COVID19	76	98.7	1	1.3
Types of vaccine				
Vaxzervria (AstraZeneca)	37	48.1	40	51.9
Sinovac	39	50.6	38	49.4
Sinopharm	29	37.7	48	62.3
Sputnik V	17	22.1	60	77.9
Johnson & Johnson	30	39.0	47	61.0
There's a contra-indication for COVID19 vaccine	60	77.9	17	22.1

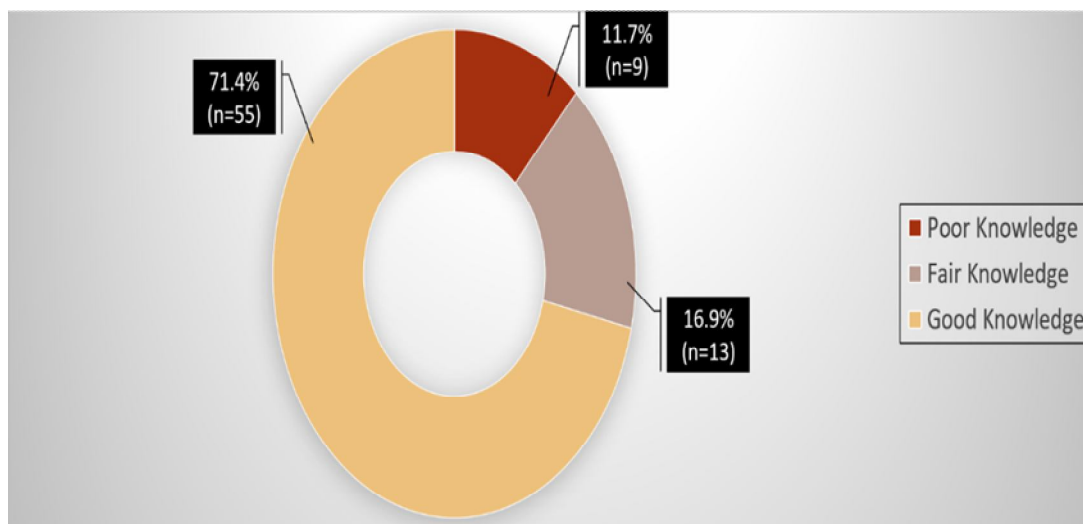


Figure 1. Total knowledge score of the studied nurses regarding COVID19 pandemic (n=77).

Table 3.A. The Studied Nurse’s Preparedness Regarding COVID19 Pandemic.

Items	Yes		No	
	no. (77)	%	no. (77)	%
Prepared for differentiating the criteria by which the individuals who are being investigated will be evaluated	71	92.2	6	7.8
Had participated in a training program for outbreak management	43	55.8	34	44.2
Prepared to assist in diagnosis and manage the COVID19 outbreak	63	81.8	14	18.2
Prepared to properly use personal protective equipments	73	94.8	4	5.2
Prepared for using safety measures for patients with aerosol transmission that should be implemented	74	96.1	3	3.9
Prepared for applying the isolation procedures	71	92.2	6	7.8
Presence of protocol for isolating and prioritizing suspicious cases	68	88.3	9	11.7
Prepared how to report a potential COVID19 case	74	96.1	3	3.9
Prepared for managing yourself if you have signs of the COVID19 infection	68	88.3	9	11.7

Table 3.B. The Hospital Preparedness Regarding COVID19 Pandemic.

Items	Yes		No	
	n (77)	%	n (77)	%
The hospital policy prevents pregnant nurse’s and who had chronic disease to deal with COVID19 cases	67	87.0	10	13.0
There is a proper proportion between patient and nurse staff number	40	51.9	37	48.1
The isolation places are available enough	64	83.1	13	16.9
The isolation places are well ventilated and comfortable	67	87.0	10	13.0
There is proper place for waste products disposal	74	96.1	3	3.9
The medication needed for COVID19 are available	61	79.2	16	20.8
Equipments are enough for caring	64	83.1	13	16.9
Equipments are sterilized in the proper method	71	92.2	6	7.8
Waste products are disposed properly	72	93.5	5	6.5
The hospital prepared enough to deal with the outbreak of COVID19 disease	67	87.0	10	13.0

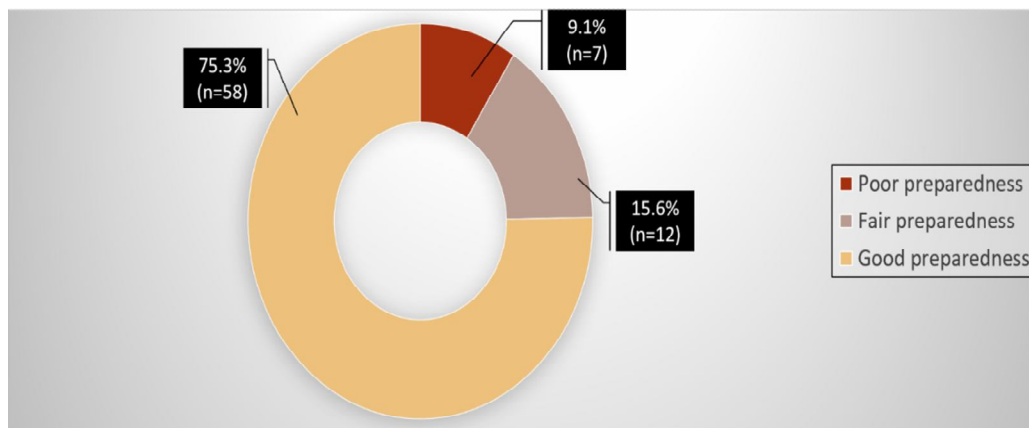


Figure 2. Total Preparedness Score of the Studied Nurses Regarding COVID19 Pandemic(n=77).

Discussion

The present study aimed to evaluate nurses' awareness and preparedness regarding COVID19 pandemic. This aim was achieved with the present study findings, which revealed that nearly three quarters of the studied nurses had good knowledge regarding COVID19 pandemic and three quarters of them had good preparedness regarding COVID19 pandemic. Therefore, the current study's findings answered the research question, which is; "what are maternity nurses' awareness and degree of preparedness regarding COVID19 pandemic".

The present study findings revealed that nearly three quarters of the studied nurses had good knowledge regarding COVID19 pandemic, while few percentages had poor knowledge. In agreement with the present study findings **kassie, Adane, Tilahun, Abebe, Kassahun, Ayele, et al., (2020)** cross-sectional study to evaluate health care providers' attitudes and knowledge about COVID-19 and related factors in northwest Ethiopia. They concluded that nearly three-quarters of health care workers had good knowledge of COVID-19 infection. In the same line, the findings of the current study were supported by **Huynh, Nguyen, Tran, Vo, Vo, & Pham, (2020)** cross-sectional study in China, District 2 Hospitals in Ho Chi Minh City used a thorough random sample approach. They concluded that most health care professionals had adequate knowledge.

The present study findings showed that most of the studied nurses had good knowledge about definition, symptoms, mode of transmission, tests for diagnosis and high-risk cases for having COVID-19. Parallel with present study findings **Olum, Chekwech, Wekha, Nassozi, & Bongomin, (2020)** study to evaluate awareness, attitudes and practices of health care professionals at the Makerere University Teaching Hospitals. They reported that more than two-thirds

of health care professionals had adequate knowledge regarding COVID19 symptoms, transmission, diagnosis and prevention. Moreover, **Shaheen, Moussa & Khamis, (2021)** cross-sectional survey of undergraduate nursing students' awareness, practices and attitudes around COVID-19 in China. They revealed that most student nurses had a strong understanding about COVID19 and able to identify its symptoms, which include muscle pain, fever, coughing, shortness of breath, a lack of oxygen diarrhea and headache as symptoms of COVID19.

Similarly, **Shaheen et al., (2021)** they reported that the majority of nursing students had good level of knowledge regarding COVID19, such as definition, transmission and the protective precautions during the outbreak. Also, **Olum et al., (2020)** who showed that nearly three quarters of participants had enough levels of awareness, particularly with regards people with chronic illnesses are more susceptible to acquire COVID19. Moreover, **Nemati, Ebrahimi, Nemati (2020)** study to assess the degree of knowledge, practices and preparedness with medical care professionals at Benha University Hospital. They reported that the majority of health care professionals were aware of COVID-19 and more than half of the studied nurses had proper awareness of the virus's symptoms, transmission and management of COVID19.

The present study findings showed that most of the studied nurses had good knowledge about availability of vaccine for COVID-19, three quarters of them know that there are contraindications for COVID-19 vaccine and around half of them know Sinovac and AstraZenca. Parallel with present study findings **Ibrahim Eldesouky Mohamed, (2022)** study to assess nurses who have received the COVID19 vaccination's experience. They found that the

majority of nurses were aware that there was a COVID19 vaccination and about half of them know that the two types of COVID19 vaccines are Sinovac and Astra-Zenca. Additionally, **Li, Chen, Pan, Liu, Zhang, Yi, et al., (2021)** cross-sectional investigation to evaluate medical care professionals in China's vaccination status, acceptance and knowledge regarding COVID19 vaccine. They concluded that the majority of participants had understanding of the COVID19 pandemic vaccine's contraindications.

The reason for an agreement between the study results may be related to this serious disease and the public health emergency that was widely reported in the news. This encouraged nurses to actively seek out information about the disease from various sources and hospital training programs in order to protect women and themselves during the maternity cycle. Also, this may be due because patients in hospitals are more susceptible to deal an infection (nosocomial infection), so nurses must stay up to date on the latest developments in the disease due to its rapid spread. They must also enhance their knowledge and standard of care at various maternity care facilities to help protect patients, themselves and their families.

However, in disagreement with the present study findings, **Elhadi, Msherghi, Alkeelani, Zorgani, Zaid, Alsuyihili, et al., (2020)** cross-sectional study to assess nurses' and physicians' level of knowledge with COVID-19. They found that nearly three quarters of the participants had inadequate knowledge of COVID19.

Furthermore, the findings of the current study were inconsistent with **Bhagavathula, Aldhalei, Rahmani, Mahabadi, & Bandari, (2020)** cross-sectional study to investigate health care workers' perceptions and knowledge about COVID19. They showed that nearly two-thirds of health care workers had inadequate awareness of the COVID19 pandemic, also, nearly two-thirds of them had insufficient knowledge of how the virus spread and about two-thirds had insufficient knowledge about COVID-19 symptoms. The disagreement between the study results may be due to the majority of the nurses in these studies had insufficient knowledge of the disease because corona virus was a new disease that was under study and has spread rapidly across the world and the medical team was busy treating the infected cases. Also, may be due to difference in the time of the study where the previous studies were conducted during the early pandemic.

The present study findings revealed that three quarters of the studied nurses had good preparedness regarding COVID19 pandemic, while few percentages had poor preparedness. In agreement with the present study findings **Amanya, Nyeko, Obura, Acen, Nabasirye, Nakaziba, et al., (2021)** cross-sectional online survey to assess health care providers awareness and preparedness of COVID19. They reported that more than three quarters of healthcare professionals were well-prepared for the COVID-19 pandemic.

The present study showed that more than half of the studied nurses participated in training program for the management of outbreak. Parallel with present study findings **Joshi, Madhura, & Jamadar (2020)** study to assess the impact of a nurse training program to enhance COVID19 preventive skills. Following the training program, three-quarters of the nurses reported a high understanding and preparation for COVID19.

The present study findings found that most of the studied nurses were prepared to use personal protective equipment properly and applying isolation procedures. In agreement with present study findings **Tadesse, Gebrewahd, & Demoz (2020)** who reported that about two-thirds of the studied nurses were well-prepared for using personal protective equipment against COVID19. Additionally, **Salah, Abo-Bakr, & Mohamed (2022)** study to assess the psychological impact of COVID19 among nurses working in isolation units. They found that nearly three-quarters of the studied nurse's reported that the hospital offered sufficient personal protection equipments, this may be related to that there was enough protective equipments (gowns, gloves, aprons, face shield). Moreover, **Mbachu, Azubuike, Mbachu, Ndukwu, Ezeuko, Udigwe, et al., (2020)** reported that most of participants were well-prepared for isolation protocols. Also, this result was parallel with **Suliman, Aloush, Aljezawi, & AlBashtawy, (2019)** who carried out the "knowledge and preparedness of precautions for isolation among nurses in Jordan" study showed that the majority of nurses were well-prepared for isolation precautions.

The present study findings showed that the majority of the studied nurses reported that the hospital policy prevents pregnant nurses and who had chronic disease to deal with COVID-19 cases. In agreement with present study findings **Singh, Govindagoudar, Chaudhry, Singh, Vashist, & Vashist, (2021)** study to assess COVID19 outbreak preparation within a teaching a hospital in

India. They found that the studied hospital prevents pregnant nurses and those with chronic illnesses from dealing COVID-19 cases within standard.

Regarding preparedness of place, the majority of the studied nurses found that isolation places are available enough and well ventilated & comfortable. Regarding preparedness of supplies, majority of them reported that equipments are enough for caring and the most reported that their equipments was sterilized in proper method. Similarly with present study findings **Griffin, Karas, Ivacu, & Lief, (2020)** who studied hospital preparation for COVID-19 from the perspective of critical care and concluded that the protocols established focused on clinical decisions for techniques to enhance the number of beds available for isolation and increase productivity by using external procedures.

Also, **Singh, et al., (2021)** revealed that the hospital had most effectively equipped with at least of six feet spacing each patient bed, full ventilation and preparedness for isolation. Face masks, personal protective equipments and other necessary supplies were available at the triage area's admission and visitors weren't allowed in the isolation ward which was set up for the admission of confirmed or suspected COVID19 cases. Strong access controls were in place in this area.

Moreover, **Singh, et al., (2021)** who reported that the studied hospital had adequate supplies and equipment. The hospital had a sufficient procedure established to ensure that environmental surfaces were cleaned and disinfected. The nursing staff understood the contact time for the chosen products and had received the necessary training. Additionally, specific areas were created for maternity nurses who had direct patient contact to put on and take off PPE as well as change into and out of bathrooms. The agreement between study results could be due to COVID19 training workshops. Nurses also received enough information about the COVID19 and infection control training.

While, the present study findings were in disagreement with **Etafa, Gadisa, & Jabessa, (2021)** cross-sectional study carried out at a hospital to evaluate health care personnel's preparedness and possible risk factors for COVID19 in public hospital in the West Ethiopian. They showed that more than three quarters were inadequately prepared for COVID-19 protective measures. Also, cross-sectional study carried out by **Kassie et al., (2020)** revealed that nearly two-thirds of the studied sample had inadequate preparedness for COVID-19 preventive measures.

In addition, the results of **Kanu, James, Bah, Kabba, Kamara, Williams, et al., (2021)** study exploring the role of knowledge, attitudes and practice about nurses' preparedness to work through the COVID19 pandemic concluded that about lack of disinfectants and personal protective equipments in hospitals made half of medical & nursing staff feel unconfident in their ability to provide care. The disagreement between the study results might be due to several factors, including a high workload, lack of personal protective equipment (PPE), inadequate institutional support also inadequate training on the importance and implementation of PPE to fight and control the transmission of COVID19. Furthermore, it may be due the differences in the nations' economic status, which reduce the availability and distribution of safety equipments in health care facilities.

Finally, assessment of maternity nurses' knowledge and preparedness regarding the COVID19 pandemic is essential factor for encouraging them to manage the new disease appropriately, thus lowering the death rate & lowering the chance of infection spread. Therefore, maternity nurses need to improve their knowledge, perception and preparedness with safety practice to help prevent, identify and manage issues with infected women to decrease maternal and fetal mortality and morbidity rate.

Conclusion

Based on the findings of the present study, it can be reveals that

Nearly three quarters of the studied nurses had good awareness regarding COVID-19 pandemic, three quarters of them had good preparedness regarding COVID19 pandemic. Most of the studied nurses know definition of COVID19, know that fever, sore throat, cough, muscle pain and diarrhea are symptoms of COVID-19 infection, most of them know mode of COVID-19 transmission and high-risk cases for having COVID-19. All of them know that gloves, mask and hard hats are personal protective equipments. Most of them know measures that must be taken to prevent the transmission of COVID19 pandemic from suspected patients. Most of them know that there is a vaccine available for COVID19 and half of them know Sinovac.

Most of the studies nurses were prepared to properly use personal protective equipments, use safety precautions and apply isolation procedures, more than half of them participated in a training program for outbreak management.

Recommendations

Based on the findings of the current study, the following recommendations were suggested:

- Stressing the need of participating in training programs such as workshops and seminars to update information and prepare for rapid changes and virus growth.
- Regular assessment of nurses to ensure the implementation of preventive measures and improve their preparedness to work with and care for COVID-19 patients.
- continues provision of personal protective equipments and training all maternity nurses of adequate procedures for preventing infections are significant and serious.
- More efforts are required to increase knowledge of nurses in order to promote early pandemic detection.

Further research

Conducting educational programs to improve nurses' awareness of and preparedness for the potential health effects of a pandemic.

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Conflicts of interests

There isn't a conflict-of-interest statement according to the investigators.

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